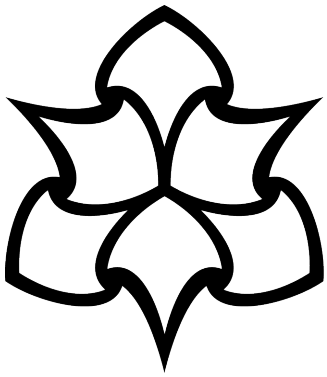

A comparison of rugby union match demands between age group categories in UK representative adolescent players

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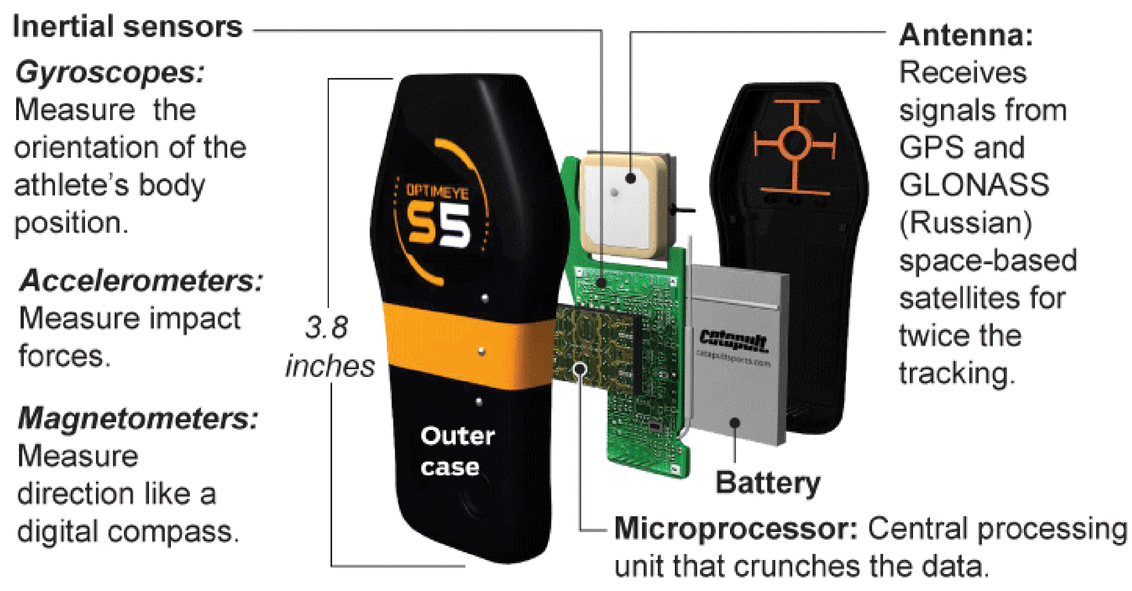
INTRODUCTION

- The physical demands of match play for professional rugby union are well established (Cahill et al., 2013). However, there is a lack of evidence for adolescent players, especially in the UK.
- Therefore, the purpose of this study was to quantify and compare the demands placed upon adolescent players across three age groups (U16, U18 and U20) and two playing positions (forwards and backs).



METHOD

- A total of 112 independent observations were collected from county representative matches.
- Players were classified into age group categories and by position (forwards; U16 [n = 20], U18 [n = 21], U20 [n = 18] and backs; U16 [n = 15], U18 [n = 19], U20 [n = 19]).
- Match demands were analysed via a microtechnology unit (Optimeye S5, Catapult Innovations, Melbourne, Australia) that contained a GPS system and tri-axial accelerometer sampling at 10 and 100 Hz, respectively.
- The difference between age groups within positions were investigated using Cohen's *d* effect sizes.

RESULTS

Table 1. Forwards data from Global Positioning System (GPS) and accelerometer. Data is presented as mean ± SD; effect size.

	Forwards					
	U16	**U18**	**U20**	**U16 vs. U18**	**U16 vs. U20**	**U18 vs. U20**
Total Distance (m)	3819 ± 1451	3828 ± 1505	3932 ± 1511	Unclear	Unclear	Unclear
Relative Distance (m.min^{-1})	77.8 ± 5.4	74.9 ± 6.8	65.3 ± 3.2	Small	Very Large	Large
Maximum Velocity (m.s^{-1})	6.6 ± 0.7	6.4 ± 1.1	5.9 ± 0.5	Unclear	Moderate	Small
Sprinting Distance (>5.84 m.s^{-1})	70 ± 94	53 ± 72	13 ± 18	Unclear	Moderate	Small
PlayerLoadSlow.min (AU.min^{-1})	3.1 ± 0.3	3.3 ± 0.3	3.4 ± 0.4	Moderate	Moderate	Unclear

Table 2. Backs data from Global Positioning System (GPS) and accelerometer. Data is presented as mean ± SD; effect size.

	Backs					
	U16	**U18**	**U20**	**U16 vs. U18**	**U16 vs. U20**	**U18 vs. U20**
Total Distance (m)	4011 ± 1375	4167 ± 1495	4338 ± 1557	Unclear	Unclear	Unclear
Relative Distance (m.min^{-1})	79.8 ± 10.5	78.7 ± 7.0	70.9 ± 8.7	Unclear	Moderate	Moderate
Maximum Velocity (m.s^{-1})	7.8 ± 0.5	7.9 ± 0.6	7.6 ± 0.6	Unclear	Small	Small
Sprinting Distance (>5.84 m.s^{-1})	213 ± 125	268 ± 167	195 ± 156	Unclear	Small	Small
PlayerLoadSlow.min (AU.min^{-1})	2.4 ± 0.3	2.7 ± 0.4	2.6 ± 0.4	Moderate	Small	Unclear

CONCLUSIONS

- The differences found in relative distance is likely due to difference in playing time between age groups and the consequent fatigue and/or pacing strategies adopted by players.
- Disparities in maximum velocity, sprinting distance and PlayerLoadSlow.min^{-1} may represent the different styles of play between age groups. PlayerLoadSlow.min^{-1} suggests an increase in static exertions per minute in U20 rugby whereas it appears the running demands are greater in U16 and U18 rugby.

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